

### **REMARKS**

Claims 1-12, as amended, are pending in this application. In this response, Applicant has amended certain claims. In light of the Office Action, Applicant believes these amendments serve a useful clarification purpose, independent of patentability. Accordingly, Applicant respectfully submits that the claim amendments do not limit the range of any permissible equivalents.

In particular, claims 1 and 7 have been amended to clarify that the impedance is static in the third region. In addition, to comply with the Examiner's suggestion, applicant has amended claim 7 to include a proper preamble. As no new matter has been added, Applicant respectfully requests entry of these amendments at this time.

### **THE REJECTIONS UNDER 35 U.S.C. § 102**

At pages 3-5 of the Office Action, the Examiner rejected claims 1, 3-7, and 9-12 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0106141 to Gopalakrishnan ("Gopal"). For the reasons stated below, Applicant submits that the Examiner's rejections have been overcome.

Gopal discloses an optical modulator device that substantially prevents coupling of a desired coplanar waveguide electromagnetic wave mode with other spurious modes within non-active sections of the modulator structure. *See* Abstract. This is accomplished without significantly impacting the modulation efficiency in an active section of the device. *Id.* The modulator includes an electrooptic substrate and a buffer layer that is formed on a surface of the electrooptic substrate. *Id.* The optical modulator includes an active section 100, a bend section 110, a taper section 120, and an input/output section 130. *See* Para. 0011. The tapers 120 provide both dimensional and impedance matches between the input/output section 130 and the active section 100 of the modulator. *Id.*

In contrast, the present invention relates to an apparatus for eliminating reflection of an input electric signal by providing an impedance matching region between an input region and a mutual operation region. *See* Abstract. The impedance may be adjusted by varying the width of a signal electrode and the interval between the signal electrode and ground electrodes. *Id.* The apparatus preferably eliminates any reflection of signals in a Mach-Zehnder optical modulator that is generated when velocity matching is performed for the light propagated through the

optical waveguide. *Id.* Further, the electric signal propagated through the signal electrode and an electrode interval is varied in order to lower the drive voltage because an impedance of the mutual operation region becomes lower than the input impedance. *Id.*

As shown above, Applicant has amended independent claims 1 and 7 to clarify that the impedance is static in the third region. FIG. 4 of the present application shows that the impedance between the traveling wave electrode and the ground electrode changes with either: (i) the width of the traveling wave electrode (FIG. 4a); or (ii) the distance between the traveling wave electrode and the ground electrode (FIG. 4b). Therefore, the tapers 120 shown in FIG. 1a of Gopal cannot change dimension and maintain impedance simultaneously. Thus, Gopal is completely silent with regard to the features recited in amended independent claims 1 and 7, *i.e.*, the impedance is static in the third region.

In light of the amendments to independent claims 1 and 7, Applicants submit that the Examiner rejections under 35 U.S.C. § 102 have been overcome. Further, Applicants submit that dependent claims 2-6 and 8-12 are allowable by virtue of their dependency on claims 1 and 7, and also for additional novel features recited therein. As such, reconsideration and allowance of the pending claims is respectfully requested.

### **THE REJECTIONS UNDER 35 U.S.C. § 103**

At pages 6-7 of the Office Action, the Examiner rejected claims 2 and 8 under 35 U.S.C. § 103(a) as being obvious over Gopal. However, as described in detail above, Gopal does not teach each and every element of amended independent claims 1 and 7. As such, Applicant submits that dependent claims 2 and 8 are allowable by virtue of their dependency on claims 1 and 7 respectively, but also for additional novel features recited therein. In light of the claim amendments, Applicant respectfully requests reconsideration and withdrawal of the § 103 rejection.

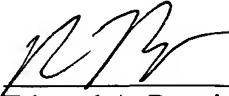
### **CONCLUSION**

All claims are believed to be in condition for allowance. If the Examiner believes that the present amendments and remarks still do not resolve all of the issues regarding patentability of the pending claims, Applicants invite the Examiner to contact the undersigned attorney to discuss any remaining issues.

A Petition for Extension of Time is submitted herewith to extend the time for response three months to and including April 4, 2006. No other fees are believed to be due at this time. Should any fee be required, however, please charge such fee to Bingham McCutchen LLP Deposit Account No. 195127, Order No. 19546.0055.

Respectfully Submitted,  
BINGHAM MCCUTCHEN LLP

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